WHAT IS CLAIMED IS:

1.   A depth information measurement apparatus for measuring depth information at a capture position of a reference image on the basis of the reference image, and at least one peripheral image that forms a stereo image pair with the reference image, comprising:

a plurality of depth information measurement means for measuring depth information from the reference image and peripheral image, said plurality of depth information measurement means using different measurement methods;

selection means for selecting one of a plurality of depth information for each predetermined region of the reference image; and

composition means for compositing the depth information selected by said selection means and outputting the composited information as depth information at the capture position of the reference image.

2.   The apparatus according to claim 1, wherein said plurality of depth information measurement means having different measurement precisions and different measuring process speeds from each other, for measuring a plurality of depth information.

3.   The apparatus according to claim 1, wherein said plurality of depth information measurement means, comprising:

first depth information measurement means for
5   measuring first depth information from the reference image and the peripheral image;

second depth information measurement means for measuring second depth information from the reference image and the peripheral image by a method different
10   from said first depth information measurement means.

4.   The apparatus according to claim 3, wherein said first depth information measurement means has a higher processing speed than said second depth information
15   measurement means, and the second depth information has higher precision than the first depth information.

5.   The apparatus according to any one of claims 1 to 4, wherein said selection means selects in accordance
20   with a predetermined condition.

6.   The apparatus according to claim 5, wherein the predetermined condition is a condition obtained from the reference image and/or the peripheral image.

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7.   The apparatus according to claim 6, wherein said selection means comprises motion detection means for detecting a motion in each predetermined region from the reference image, and

5   said predetermined condition is based on an amount and/or a direction of the motion detected by said motion detection means.

8.   The apparatus according to claim 6, wherein one
10 of said plurality of depth information measurement means comprises reliability detection means for detecting a reliability of the measured depth information, and

said predetermined condition is based on the
15 reliability detected said reliability detection means.

9.   The apparatus according to claim 4, wherein said selection means comprises motion detection means for detecting a motion in each predetermined region from
20 the reference image, and

said selection means selects the first depth information for the predetermined region in which the detected motion has not less than a predetermined amount, and selects the second depth information for
25 other regions.

10.   The apparatus according to claim 4, wherein said first depth information measurement means comprises reliability detection means for detecting a reliability of the first depth information, and

5   said selection means selects the first depth information for the predetermined region in which the detected reliability has not less than a predetermined amount, and selects the second depth information for other regions.

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11.   The apparatus according to claim 4, wherein said second depth information measurement means measures the second depth information using a condition which is not considered when said first depth information

15   measurement means measures the first depth information.

12.   The apparatus according to claim 11, wherein the conditions include occlusion by an object.

20   13.   The apparatus according to any one of claims 1 to 12, wherein said depth information output from said composition means are one of disparity information, a disparity map, distance information, and a range image.

14.   A mixed reality presentation system including a depth information measurement apparatus cited in any one of claims 1 to 13.

5   15.   A storage medium which stores a program that can be executed by a computer apparatus, and makes the computer apparatus that has executed the program function as a depth information measurement apparatus cited in any one of claims 1 to 13.

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16.   A depth information measurement method for measuring depth information at a capture position of a reference image on the basis of the reference image, and at least one peripheral image that forms a stereo

15   image pair with the reference image, comprising steps of:

a measurement step of measurement a plurality of depth information from the reference image and peripheral image, using different measurement methods;

20   a selection step of selecting one of the plurality of depth information for each predetermined region of the reference image; and

a composition step of compositing the depth information selected by said selection step and

25   outputting the composited information as depth

information at the capture position of the reference image.

17. The method according to claim 16, wherein said
5 measurement step measures the plurality of depth information at different measurement precisions and different measuring process speeds from each other.

18. The method according to claim 16, wherein said
10 measurement step, comprising:

first depth information measurement step of measuring first depth information from the reference image and the peripheral image;

second depth information measurement step of
15 measuring second depth information from the reference image and the peripheral image by a method different from said first depth information measurement step.

19. The method according to claim 18, wherein said
20 first depth information measurement step utilizes a higher processing speed than that of said second depth information measurement step, and the second depth information has higher precision than that of the first depth information.

20. The method according to any one of claims 1 to 4, wherein said selection step selects in accordance with a predetermined condition.

5 21. The method according to claim 20, wherein the predetermined condition is a condition obtained from the reference image and/or the peripheral image.

22. The method according to claim 21, wherein said 10 selection step comprises motion detection step of detecting a motion in each predetermined region from the reference image, and

said predetermined condition is based on an amount and/or a direction of the motion detected by 15 said motion detection step.

23. The method according to claim 21, wherein said measurement step has reliability detection step of detecting a reliability of the measured depth 20 information, and

said predetermined condition is based on the reliability detected said reliability detection step.

24. The method according to claim 19, wherein said 25 selection step comprises motion detection step of

detecting a motion in each predetermined region from the reference image, and

said selection step selects the first depth information for the predetermined region in which the detected motion has not less than a predetermined amount, and selects the second depth information for other regions.

25. The method according to claim 19, wherein said first depth information measurement step comprises reliability detection step of detecting a reliability of the first depth information, and

said selection step selects the first depth information for the predetermined region in which the detected reliability has not less than a predetermined amount, and selects the second depth information for other regions.

26. The method according to claim 19, wherein said second depth information measurement step measures the second depth information using a condition which is not considered when said first depth information measurement step measures the first depth information.

27. The method according to claim 26, wherein the conditions include occlusion by an object.

28.   The method according to any one of claims 1 to 12, wherein said depth information output from said composition step are one of disparity information, a disparity map, distance information, and a range image.

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29.   A mixed reality presentation system executing a depth information measurement method cited in any one of claims 16 to 28.

10   30.   A storage medium which stores a program that can be executed by a computer apparatus, and makes the computer method that has executed the program function as a depth information measurement method cited in any one of claims 16 to 28.

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31.   An image generation apparatus comprising:

a first image processor for generating a stereo image from a plurality of images having disparity;

a second image processor capable of generating an

20   image with a higher precision than that of said first image processor;

a motion detector for detecting a motion of an image; and

an image generator for generating an image by

25   selectively using outputs from said first and second

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image processors on the basis of an output from said motion detector.

32. The apparatus according to claim 31, wherein said first image processor can generate an image at a higher speed than that of said second image processor.

33. The apparatus according to claim 31, wherein said image generator generates an image for a large moving amount in the image using the output from said first image processor and for a small moving amount in the image using the output from said second image processor.

34. The apparatus according to claim 31, wherein said first and second image processors output depth information of an image.

35. The apparatus according to claim 31, wherein said image generator controls composition processing for the outputs from said first and second image processors on the basis of a predetermined output from said first image processor.

36. The apparatus according to claim 35, wherein the predetermined output comprises information about a reliability.

37. An image generating method comprising steps of:

a first image processing step of generating a stereo image from a plurality of images having disparity;

5   a second image processing step of generating an image with a higher precision than that of said first image processing step;

a motion detecting step of detecting a motion of an image; and

10   an image generating step of generating an image by selectively using outputs from said first and second image processors on the basis of an output from said motion detecting step.

15   38. The method according to claim 37, wherein said first image processing step can generate an image at a higher speed than that of said second image processing step.

20   39. The method according to claim 37, wherein said image generating step generates an image for a large moving amount in the image using the output from said first image processing step and for a small moving amount in the image using the output from said second

25   image processing step.

40.   The method according to claim 37, wherein said first and second image processing steps output depth information of an image.

5   41.   The method according to claim 37, wherein said image generating step controls composition processing for the outputs from said first and second image processing steps on the basis of a predetermined output from said first image processing step.

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42.   The method according to claim 41, wherein the predetermined output comprises information about a reliability.

15   43.   A computer-readable storage medium which stores a program for generating an image, said program comprising:

        a first image processing step of generating a stereo image from a plurality of images having

20   disparity;

        a second image processing step of generating an image with a higher precision than that of said first image processing step;

        a motion detecting step of detecting a motion of

25   an image; and

an image generating step of generating an image
by selectively using outputs from said first and second
image processors on the basis of an output from said
motion detecting step.

44. The medium according to claim 43, wherein said
first image processing step can generate an image at a
higher speed than that of said second image processing
step.

45. The medium according to claim 43, wherein said
image generating step generates an image for a large
moving amount in the image using the output from said
first image processing step and for a small moving
amount in the image using the output from said second
image processing step.

46. The medium according to claim 43, wherein said
first and second image processing steps output depth
information of an image.

47. The medium according to claim 43, wherein said
image generating step controls composition processing
for the outputs from said first and second image
processing steps on the basis of a predetermined output
from said first image processing step.

48.   The medium according to claim 47, wherein the predetermined output comprises information about a reliability.